

WHAT IS CLAIMED IS:

1. A DC-DC converter comprising:
a synchronous semiconductor device; and
a control semiconductor device;
wherein at least one of said semiconductor device includes:
5 a semiconductor body having a major surface;
an active region formed in said semiconductor body; and
a termination structure, said termination structure including,
a termination trench formed in said semiconductor body, and a field oxide
layer formed in said termination trench below said major surface.
2. A semiconductor device according to claim 1, wherein said
semiconductor body is of a first conductivity and includes a channel region of a
second conductivity, and further comprising at least one gate structure adjacent said
channel region.
3. A semiconductor device according to claim 2, further comprising a
trench extending through said channel region, wherein said gate structure is disposed
in said trench and includes a gate oxide layer disposed at least on said sidewalls of
said trench and a gate electrode disposed adjacent said gate oxide layer.
4. A semiconductor device according to claim 3, wherein said trench
include an oxide mass formed at its bottom said oxide mass being thicker than said
gate oxide layer.
5. A semiconductor device according to claim 4, wherein said
semiconductor body includes conductive regions of said first conductivity formed

adjacent said trench in said channel region, and further comprising a semiconductor substrate of said conductivity, said semiconductor body being formed over said
5 semiconductor substrate, wherein said conductive regions are electrically connectable to said semiconductor substrate through invertible channels adjacent said trench.

6. A semiconductor device according to claim 5, wherein said conductive regions are source regions.

7. A semiconductor device according to claim 3, wherein the depth of said trench has been selected to achieve an optimum figure of merit.

8. A semiconductor device according to claim 3, wherein said trench is a stripe.

9. A semiconductor device according to claim 3, wherein said trench is a cell.

10. A semiconductor device according to claim 9, wherein said cell is hexagonal.